Prabh Simran Singh Baweja

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EDUCATION

Carnegie Mellon University   Pittsburgh, PA

Master of Science in Electrical and Computer Engineering | GPA: 3.9/4.0   Dec 2021

Selected Coursework: Machine Learning (PhD Level, 10-701), Deep Learning (11-785), Quantum Computing (11-860), Machine Learning for Large Datasets (10-805), Neural Networks for NLP (11-747), Computer Systems (15-513)

International Institute of Information Technology Hyderabad   Hyderabad, India

Bachelor of Technology in Computer Science and Engineering | Dean's Merit List, 2014   May 2016

SKILLS

- **Programming Languages**: Python, Java, C++

- **Technologies**: Tensorflow, Pytorch, Numpy, Pandas, OpenCV, Scikit, Docker, GCP, AWS, Kubernetes

PROFESSIONAL & RESEARCH EXPERIENCE

College of Engineering, CMU   Pittsburgh, PA

Research Assistant   Jan 2021 - Present

- Exploring ways to generate realistic synthetic datasets by combining physical knowledge of the scene and product.
- Developed FasterRCNN model for pallet detection, 3D Cross View Tracking technique, and Counting model using geofencing for each warehouse.
- **Achieved 90% inventory counting accuracy at 2 warehouses. The system is currently being deployed at 20 warehouses.**

Aifi   Santa Clara, CA | Remote

Intern   Aug 2020 - Dec 2020

- Automated end-to-end vision product recognition workflows for rapid and reliable experimentation.
- **The Machine Learning Pipeline led to a 55% monthly reduction in resource utilization cost.**

Booking.com   Amsterdam, Netherlands

Software Developer   Jun 2017 - Aug 2019

- Developed a Contextual Linguistic Analysis Model to provide semantic context for the Booking.com Chatbot.
- Started a platform for Account Managers to provide them customer insights using Collaborative Filtering.
- Gave **technical talks** on **Chatbots in the Travel Industry** at PyCon, Poland and FullStack Fest, Barcelona.

Codenation   Dubai & India

Software Developer   Jun 2016 - Apr 2017

- Implemented an automated refactoring system that modularizes 30-40% of duplicate code cases - a 7-fold improvement from the state of the art. ***Patent filed***.

PUBLICATIONS

- **"PIWIMS: Physics Informed Warehouse Inventory Monitory via Synthetic Data Generation"**, Ubicomp Combining Physical and Data-Driven Knowledge in Ubiquitous Computing (CPD), 2021.

- **"Intelligent Stock Market Gamification Models"**: Customer Segmentation & Personalized Learning Experience to curb investment fraud, Poster at Carnegie Mellon Tech Summit on AI for Sustainable Future, 2019.

SELECTED PROJECTS

- **Neural Network Toolkit**: Implemented a Dynamic Neural Network Toolkit using Pytorch.
- **Scientific IE**: Improved the SOTA neural baseline module for Relation Extraction on SciREX dataset by 10%.
- **BERT**: Re-implemented important components of BERT, including Attention and Transformers.
- **REINFORCE**: Implemented REINFORCE with baseline method to reduce variance for LunarLander environment.